REMARKS

In the Office Action mailed March 1, 2006, the Examiner noted that certain claims wer pending, and rejected claims 1, 14, 15, 17-19 and 32-36. Claims 2-13, 16, 20-24 and 27-31 have been withdrawn. No claims have been amended, new claim 37 has been added, and, thus, in view of the forgoing claims 1, 14, 15, 17-19 and 32-37 remain pending for reconsideration which is requested. No new matter has been added. The Examiner's rejections are traversed below.

<u>The Rejections</u>

On page 2 of the Office Action, the Examiner rejected claims 1, 14, 17, 32, 33, 35 and 36 under 35 U.S.C. § 102 as anticipated by Winkelman. Page 4 of the Office Action rejects claim 18 under 35 U.S.C. § 103 over Winkelman and Kinjo. Page 4 of the Office Action also rejects claims 15, 19 and 34 under 35 U.S.C. § 103 over Winkelman and Katajamaki.

<u>Request For Interview</u>

Prior to the issuance of the next Action, it is requested that the Examiner provide the undersigned an opportunity to conduct a personal interview with the Examiner. The Examiner is requested to contact the undersigned when convenient to discuss a date and time for such an interview.

<u>Discussion</u>

It is important for the Examiner to understand that claim 36 is directed to dividing an image into sub-areas, producing a statistical amount for each sub-area, producing a statistical value for the entire image from all of the statistical amounts.

> 36. A method of image tone color value level correction of an image, comprising:
> dividing the image into sub-areas;
> producing a statistical amount for each of the sub-areas of the image;
> producing a statistical value for the entire original image from all of the statistical amounts of the sub-areas of the image; and
> using the statistical value to correct a tone color value level of the entire image.

That is, two operations: A. where a characteristic amount is computed for each of the plurality of sub-areas, and B. the statistic value is computed for the entire image, not just the sub areas, from all the statistical amounts.

In contrast, as the Examiner notes, Winkelman has three operations, 1. calculating a mean value of the of the sub image, 2. using this mean value to calculate a standard deviation for a sub image, and 3. using the standard deviation to calculate an aggregate histogram.

We note that each standard deviation is a value computed for a corresponding sub image and, as a result, cannot be the statistical value "for the entire image" as recited in claim 36.

Because the standard deviation is not comparable to the statistical value, the Examiner appears to equate the result of the third operation of Winkelman (calculating an aggregate histogram) with the "producing a statistical value for the entire original image from all of the statistical amounts of the sub-areas of the image" recited in claim 36. This comparison is also inappropriate. The aggregate histogram in Winkelman is not calculated for the entire image but rather for only a portion of the image. In particular, as stated by Winkelman:

> The known methods for the analysis of image gradation of image originals are based on histogram modification methods with identification of image-critical regions of the image original based on high-pass filtering techniques.

(See Winkelman, col. 2, lines 16-19)

> This procedure has the disadvantage that background and foreground regions low in structures and unimportant to the image unduly alter the course of the histogram and, thus, unduly alter the gradation correction as well. Before applying a histogram modification method, the image-critical foreground and background regions must therefore be separated from the image-insignificant regions of the image original.
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> In the methods for identifying image-critical regions of the original by high-pass filtering (LaPlace filtering or the like), however, only picture elements wherein the high-pass filter signal upwardly crosses a threshold are utilized for the calculation of the frequency distribution. This procedure, however, is extremely calculation-intensive and, thus, time consuming. Moreover, the identification of the frequency distribution from the edge information of the image is frequently unbeneficial

(See Winkelman, col. 2, lines 29-46)

> the sub-image histograms of the individual sub-images are evaluated and sub-images critical to the image for image gradation are identified based on the evaluation;
>
> an aggregate histogram that corresponds to the frequency distribution of the image values, or, respectively, of the luminance component of the color values, in the image-critical sub-images is calculated from the sub-image histograms of the image-critical sub-images; and

(See Winkelman, col. 3, lines 21-31)

> The identification of the image-critical sub-images respectively occurs according to a classification pattern by comparing the histogram parameter of "scatter" (SDev) and the histogram parameter of "relative area proportion of the most frequent image values" (FLAnt) with thresholds (SwSDev, SwFLAnt) that are selectable for the image original.
>
> In an embodiment of the invention, a sub-image is advantageously classified as image-critical according to a classification pattern when the value of the

histogram parameter "scatter" (SDev) of the sub-image is greater than a previously prescribed threshold (SwSDev) and the value of the histogram parameter "relative area proportion of the most frequent image values" (FLAnt) of the sub-image is lower than the prescribed threshold (SwFLAnt).

(See Winkelman, col. 3, lines 54-67)

In an embodiment of the invention, an RMS rated value (Rmsi) is calculated as a prescribed value for the contrast correction according to a classification pattern by comparing statistical histogram parameters of "skewness" (Skew) and "Kurtosis" (Kurt) calculated from the aggregate histogram of the image-critical sub-images to prescribable thresholds (SSw, KSw).

(See Winkelman, col. 6, lines 13-19)

The identification of the sub-images critical to the image and not critical to the image takes place, for example, with the assistance of the statistical histogram parameter SDev "scatter" or, respectively, "standard deviation" and of the histogram parameter FIAnt "relative area proportion of the most frequent image values", referred to in short as histogram parameter FIAnt "rel.area proportion". However, other histogram parameters can also be utilized.

(See Winkelman, col. 10, lines 5-12)

It has proven advantageous to define the threshold SwSDev and/or the threshold SwFLAnt depending on the original in order to obtain an adequate plurality of image-critical sub-images for calculating the luminance histograms.

(See Winkelman, col. 11, lines 64-67)

In a fourth method step [D], an aggregate histogram that corresponds to the frequency distribution of the image values or, respectively, of the luminance component in the image-critical sub-images is calculated from the sub-image histograms of the subimages classified as image-critical. For that purpose, the functionally corresponding frequency values for every luminance stage L* are added together in the individual sub-image histograms of the image-relevant sub-images and the summed-up frequency values are defined a as new frequency distribution over the corresponding luminance values L* as aggregate histogram.

FIG. 6A illustrates the trend of a prior art luminance histogram without classification of image-critical sub-images. FIG. 6B juxtaposes an image original 20. According to the prior art, the entire image original is utilized for the formation of the resulting luminance histogram 21, this being shown in FIG. 6A.

FIG. 6C shows an example of a classification of image-critical sub-images and the trend of an aggregate histogram that results from the sub-image histograms of the image-critical sub-images.

FIG. 6D again shows an image original 20 that was subdivided into sub-images 22 according to method step [A]. According to method steps [B] and [C], sub-image histograms produced for the sub-images 22 and image-critical sub-images are identified by evaluating the sub-image histograms. Image-critical subimages are marked in black by way of example in FIG. 6D.

The aggregate histogram 23 formed according to method step [D] is shown in the FIG. 6C. This aggregate histogram reproduces the frequency distribution of the luminance values L* from the image-critical regions of the original.

The aggregate histogram is employed for the calculation of a correction curve G=f(L) [in] method step [E] for the correction of the image gradation characteristic for the purpose of contrast correction.

(See Winkelman, col. 13, lines 6-41)

evaluating the sub-image histograms of the individual sub-images and identifying sub-images critical for image gradation since they are identified as being high in

> structure wherein relatively large image value changes occur as compared to other of the sub-images which are lower, in structure wherein relatively smaller image value changes occur;
> generating an aggregate histogram comprising a summation of frequency distributions of the image values in the critical sub-images from the sub-image histograms of the critical sub-images; and
> generating a correction curve function from the aggregate histogram for correction of the image gradation characteristic of the image original for contrast correction.

(See Winkelman, col. 17, line 66 - col. 18, lines 1-9)

As can be seen from the above discussion, only critical sub images are used to calculate the aggregate histogram in Winkelman. As a result, generating the aggregate histogram also does not correspond to "producing a statistical value for the entire original image from all of the statistical amounts of the sub-areas of the image" of claim 36.

Similar emphasis of this feature is found in claims 1, 14, 15, 17, 19, 32, 33, 34 and 35.

Kinjo and Katajamaki add nothing to Winkelman with respect to the above-discussed features.

New claim 37 also emphasizes the features discussed above. Nothing in the prior art teaches or suggests such. It is submitted that the new claim, which is different and not narrower than prior filed claims, distinguish over the prior art.

The dependent claims depend from the above-discussed independent claims and are patentable over the prior art for the reasons discussed above. The dependent claims also recite additional features not taught or suggested by the prior art. For example, claim 18 calls for the determination of a weight coefficient for each sub-area. The Examiner points to Kinjo at col. 17, lines 42-46 and col. 17, line 60 - col. 18, line 3 for this feature asserting that the "fifth mark" of Kinjo is equivalent to a weight coefficient. The marks of Kinjo are not weights but rather are grades or scores (see Kinjo, col. 17, line 37 and the fifth mark is particularly described as:

> A fifth mark is obtained in accordance with a pre-designated central position of the pupil and the distance between the eye. The further from the center of the pupil, the lower the fifth mark. The region having the highest mark is the region apparently having the characteristic the most similar to that of a pupil portion, that is, a red-eye region. The pupil portion has the highest fifth mark and the fifth mark decreases as the position moves apart from the pupil as shown in FIG. 19B which shows the marks at the dashed lines of FIG. 19A.

(See Kinjo, col. 18, lines 4-13)

The fifth mark, as can be seen from the above discussion in Kinjo, is not a weight coefficient. It is submitted that the dependent claims are independently patentable over the prior art.

It is submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

The Examiner is reminded that a request for a personal Interview has been made above.

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

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